Proceedings of the Madras Government, Public Department, *7th October* 1875.

Sanitary.

No. 23. Read the following letter from A. HOWELL, Esq., Officiating Secretary to the Government of India, Home Department (Sanitary), to the Secretary to the Government of Bengal, Judicial Department, dated Simla, 20th September 1875, No. 298:—

No. 64 (Statistics and Commerce), dated 15th July 1875.

I am directed to forward, for any remarks which His Honor the Lieutenant-Governor may desire to offer, the enclosed despatch from Her Majesty's Secretary of State for India giving cover to the observations of the Army Sanitary Commission on the Bengal Sanitary Report for 1872.

2. The points to which special attention is drawn by the Army Sanitary Commission are the urgent need of improving the registration of deaths, the importance of collecting and stating fully all the facts connected with the existence of disease, and more particularly of cholera, and, above all, the need for action in dealing with local causes of disease. The first point is especially important, and the Governor-General in Council trusts that future reports will show that more attention has been given to it.

From Her Majesty's Secretary of State for India, to the Government of India, dated India Office, London, 15th July 1875, No. 64.

In transmitting to your Excellency, in accordance with the custom followed in recent years, a copy of remarks by the Army Sanitary Commission on the Bengal Sanitary Report for 1872, I have to observe that this Report has been received so long after date as to be almost devoid of utility and interest.

Remarks of the Army Sanitary Commission on "Report of the Sanitary Commissioner for Bengal for the year 1872, by C. J. JACKSON, M.D., Officiating Sanitary Commissioner."

1. The Resolution of the Government of Bengal appended to this Report calls attention to the fact that much of the detail in it is comparatively out of date, owing to the long period which had intervened between the occurrences themselves and the date of presentation of the Report. Some of the questions dealt with have already been before the Sanitary Commission on other papers, and in regard to others action has already been taken by the Government. There is hence not much in the report calling for remark from the Commission. But nevertheless there are points in it of considerable interest connected with the general sanitary condition of Bengal on which a few observations may not be out of place.

2. The first section of the report deals with the vital statistics of the Government, in regard to which the only remark called for is that they are so defective as to be useless for any sanitary purpose.

The Reporter says: "The cause of this utterly imperfect and useless system of registration is attributable mainly to bad agency, and, secondly, to want of interest on the part of local officers, and the consequent absence of the necessary supervision.

"The present village system of Bengal is utterly weak and bad, and until some thorough change is made, and a compulsory system of registration introduced, I fear that there is no chance of material improvement."

No better evidence can be adduced of the uselessness of the present system than the fact to which attention has been called by the Commission, namely, that out of fifty-three registration districts in Bengal, the registered death rates lie between five and nine per 1,000 in twenty-four

districts. In twelve districts the rate is between three and five per 1,000, and in seven it is less than three per 1,000. In eight districts only does the registered death rate exceed ten per 1,000, and the highest rate registered is 22·5 per 1,000. Statistical work such as this is worse than useless, because to those who do not know what it really represents the assumed facts may convey a very erroneous impression of the real sanitary condition of the country. The Commission has on other papers called attention to the progressive improvement in registration in other Indian Governments but it appears as if in Bengal, with its 66,856,859 inhabitants and its enormous epidemic death rates, no step had been yet taken either to ascertain or to localise the mortality, without which no economical sanitary work can be done. As a number of years have elapsed since registration of deaths has been introduced into India, it seems not out of place in the face of such results to call attention to the necessity of providing some suitable machinery for ascertaining the current state of health of so vast a population.

It is to be hoped that the paragraph in the Government Resolution stating that "it will also be desirable that the chapter regarding vital statistics should be considered separately in the Statistical Department of this Office" may lead to improvement in the whole method of collecting and tabulating the facts.

3. Section II. contains an account of cholera, and the first paragraph states that "there are no statistics in existence upon which it is possible to base a probable estimate of the average annual mortality from cholera in the Bengal Provinces. Moreover, the mortality record itself is utterly unreliable; the diagnosis of the cause of death is made by ignorant villagers;" but the Reporter states that he thinks it "probable that, of all the causes of death which enter into our system of mortuary classification, cholera—from its suddenness, the rapidity with which it kills, the attention it everywhere excites, and the panic it occasions—is the most likely to be fully reported."

This would appear to afford a basis on which to rear a registration method. Here at least is a disease, the approximate mortality from which, and its topographical position at any period of the year, might be ascertained simply by providing a method for collecting the facts. The only point which appears certain is that cholera existed all over Bengal. Although 1872 was not an epidemic year, the registered mortality was 45,761.

4. As the districts affected which cholera in 1872 included those within Dr. Bryden's endemic area, it may be useful to introduce a few notes from the district reports to show the existing sanitary conditions when cholera prevailed.

There is one notice of cholera as "endemic in character" in Beerbhoom. It is described as "prevailing in villages near the River More, in the north-east of the district, during March and July to December." It affected only a few persons "in each village, ceasing for a short time, and re-appearing after an interval of two weeks or more." In all the other districts the disease is not described as endemic, but it appears to have been made up of local outbreaks.

The Beerbhoom observation might be repeated with advantage in every district within Dr. Bryden's endemic area, with the view of tracing the continuous existence of cholera within defined limits to its causes.

Perhaps the most important observation on this point in the present report relates to the sanitary condition of Beerbhoom District. It is as follows:—

"These villages are filthy, low, and situated near the bed of the river, which, owing to the silting at its mouth, is converted into a sluggish stream during the rains, and is at other periods of the year a shallow lake, or rather a swamp."

It would appear that in this case at least the term "endemic" merely implies the continuous existence of local causes of malaria of more than ordinary intensity.

It is most important that this subject should be pursued, as proposed long ago in our instructions for the Indian Cholera Inquiry. Cholera appeared in a sporadic form in other villages in the same district the topographical conditions of which differed from those mentioned above, the villages being situated on laterite or rock. The Reporter states that "these localities differ entirely as to physical conditions. . . . The one attribute they have in common is that of excessive

filthiness and disregard of the commonest sanitary rules." It would appear that the addition of perennial dampness of sub-soil and surroundings to filthiness determined the "endemic" character of cholera in the low villages along the river bank.

5. In Hooghly District the disease is ascribed to "deficient and impure supply of water in remote villages."

An outbreak of cholera in a boarding-house in Calcutta was apparently connected with impurity of organic kind, added to the wholesome water with which Calcutta is now supplied in the process of conveying the water in a mussuck from the stand-pipe to the house. It is not, however, clearly made out.

6. The development and spread of cholera in certain localities in Dacca inhabited by coolies is attributed by the Civil Surgeon to the following conditions :—

(I). Overcrowding, each man having no more than six superficial feet of space.
(II). Unwholesome water from a well only four feet deep.
(III). Use of bad rice.

7. In Cachar the disease was attributed to importation, but the Civil Surgeon "is of opinion that it arose spontaneously and from local causes, *viz.*, the foul atmosphere the inhabitants live in, the impure water they drink, and the accumulation of filth around them."

8. In Chittagong "cholera prevailed endemically throughout the district during the whole year. It broke out in one place, and after carrying off a few persons suddenly disappeared. It was next heard of some miles off. Later on, it appeared in the same villages it had visited before, and ran the same course."

The causes of apparent "*endemicity*" in this case are instructive. "*Low-lying, damp localities, where the drinking water was impure, and no attention was paid to conservancy, suffered most.* In localities where the opposite conditions were maintained the disease was kept in check, but only until the people relapsed into their former habits of uncleanliness and neglect of conservancy."

This experience would appear to show that, by removing certain bad sanitary conditions in "endemic" localities, the "endemic" character of cholera may be broken up.

9. In a group of villages in Noakholly District cholera is stated "to have been generated on the spot, and to have died out there without spreading." No evidence of communication or contagion.

There are usual differences of opinion as to question of contagion.

In a number of instances cholera broke out among laborers in tea gardens. In some cases the arrival of persons not affected with cholera appears to have been accepted as sufficient cause.

In other cases no arrivals had taken place. The tea gardens ought to afford good opportunities of studying cholera, as the population is limited and under control. There is no sufficient information as to the sanitary condition of dwellings where the laborers reside, or as to the cubic space and superficial area allotted to each man or woman, the watter-supply, conservancy, and the like—all of which ought to be fully described and defects remedied before a word is said about importation. There are two facts, however, which throw doubts on the importation theory: one is that coolies disregard hygienic rules, and the other is that the best way to arrest cholera in a tea garden is to evacuate the premises, and sometimes to burn them down—sufficient reason, it may be said, to suspect the existence of local causes.

On the other side of the question, the Medical Officer of Tipperah, where a severe outbreak of cholera took place, believed to have been imported by visitors to a fair, says : "I can give no proof of the contagiousness of cholera at all satisfactory. I have seen and gone through six epidemics of cholera, four in Europe, 1832 and 1834 and 1848 and 1849, and two in North America in 1852 and 1854, and to my mind the proof is the other way, that it is not or to a very small extent contagious."

There are instances mentioned in the present Report in which the question of importation might apparently have been decided one way or another by a little more care on the part of the

local observers. The only way to arrive at a result is simply to record the facts, and to take care that they are all recorded ; the cautions required in observation have been already included in the instructions for the Indian Cholera Inquiry.

10. The more important points in the history of cholera in this Report may be briefly enumerated as follows :—

(*a*) Cholera sometimes appeared after the arrival of persons from places presumed to be infected ; but the chain of causation not having been sufficiently traced, it is not possible to consider these cases as any thing else than coincidences—a kind of evidence of no use for any practical purpose.

(*b*) Cholera sprang up to all appearance spontaneously in cases where no importation was traced.

(*c*) Large rainfall was followed by subsidence of cholera. Hence excess of water is not necessarily a cause of cholera, but it may be a means of prevention or remedy.

(*d*) Ground damp, especially if the ground were sodden with moisture and impurities, was apparently an efficient exciting agent of cholera.

(*e*) Filth, crowding, bad water, and other simlar local defects, were concomitants of cholera attacks.

11. Further inquiry should be made into the causes of high death rates from cholera in the tea gardens. The necessity for this is shown by the fact that in ten gardens in Darjeeling District, in which 3,723 coolies—men, women, and children—were employed, no fewer than 751 died of cholera—a death rate of above twenty per cent. In the district of Darjeeling itself there is a population of 60,000, among whom there were 205 cholera deaths = a death rate of 3·4 per 1,000. The cholera mortality in the tea gardens appears to have been nearly sixty-fold that of the mortality registered among the civil population. But a note on the mortality tables shows that neither return is trustworthy ; the deaths among the civil population are much understated, and those in the tea gardens, although nearer the truth, include only the States to the south of Darjeeling. Any way, the enormous loss of life in the tea gardens appears urgently to call for inquiry into the condition of the dwellings of the coolies and their surroundings, as well as into the state of the water-supply.

12. Some information respecting cholera in jails is given in the report, among which there occurs the following point of importance ; it refers to Dehree Jail :—

" It strikes me that within a limited enclosure surrounded by walls, and with only two *kutcha* drains as outlets, the soil must, when the rainfall is heavy, become unduly humid—sodden in fact, and when in that condition, with a subsequent hot sun and perhaps dry wind passing over it, a great diminution of temperature must take place. To this I am disposed to attribute the origin of much of the marlarious disease, including cholera, which has lately prevailed."

This statement refers to a well-known sanitary principle which teaches us that the healthiest site and soil may become very unhealthy, unless they are properly drained and kept clean.

This principle applies not only to the surface of military stations and yards of prisons, but in a far greater degree to the sanitary state of earthen floors of barrack rooms and jail wards. In these latter instances, the only safe thing to do is to remove the surface soil frequently, to apply quick-lime or charcoal, and then to replace the surface with fresh clean soil.

But far better than this would be to floor the rooms, leaving a free air current between the flooring and the ground level, which should be covered with a layer of charcoal dust.

13. Other examples are cited in which there was overcrowding, bad drainage, and impure water, and an unwholesome condition of latrines, when the jail was attacked with cholera.

14. The report on Monghyr Jail contains the following important passage :—"Cholera, which formerly appears to have been endemic in the Jail, may be said to have disappeared from it. No cases occurred during the year under report, and since 1867 only five cases were recorded to have been admitted into hospital, *viz.*, three in 1868, and one each in 1870-71.

"The comparatively general healthy condition of the Jail, which dates from 1864, and its freedom from cholera, are ascribed to the introduction of the dry-earth conservancy system, combined with the adoption of a more liberal scale of diet and improvements in the ventilation and drainage of the prison." These facts may very well be compared with those connected with other Bengal Jails which have not enjoyed the same immunity from cholera.

15. Nearly two-thirds of the mortality in Bengal is stated to be due to fever—a proportion which throws into the shade the death rate from epidemic cholera. Burdwan District has suffered most severely from the disease, which is described as "an exaggerated and congestive form of malarious fever, most frequently of the intermittent type, generally assuming the most intense and asthenic character in localities where the recognised pre-disposing causes of the disease preponderate most."

The fever is progressing "steadily, though slowly. It has followed like a rolling wave the chief roads or means of intercommunication. It slumbers or smoulders for one, two, or three years, and then breaks out afresh," always during or towards the close of the rains. With reference to local causes, it is stated that "an overcrowded, low-lying, badly-drained, filthy village was sure to be attacked and to suffer severely." Villages "which have never been inundated have never as yet suffered from the endemic fever," and villages "situated on higher ground, with natural drainage, scanty population, good and fair water-supply, and better ventilation, escaped or suffered less severely."

16. In reply to the question—What brings on these epidemic fevers? the following answer is given :—

"*Over-population and over-crowding, diminished food-supply, defective sanitary arrangements, as bad water, no drainage, filthy villages, and no ventilation.* People leaving under such conditions must deteriorate from generation to generation, and the last straw breaks the camel's back. While population was increasing, the old villages went on deteriorating every day. Every available spot was taken up for huts; extra holes were dug in order to receive filth and refuse; the air was poisoned by the emanations from a crowd of people huddled together; tanks became impure, and the water-supply, which was considered good for the father or grandfather, was considered good for the son or grandson; bodies were buried close to the surface or near a tank or water-supply, while others were buried in the centre of the village."

There followed on this condition of matters deterioration of cattle and of food, and fish disappeared.

This history, which confirms all that had been previously stated, is simply the history of the physical decay of a people, which can be arrested only by one of two courses, either the removal of the people or change in the deteriorating conditions.

We are told in this same report that many villages are inundated for months in the year, and a water-logged subsoil is left behind. These villages have suffered the most, but it is satisfactory to be informed that "this subject is now under the consideration of Government, and a proper system of drainage may be expected."

There is no doubt about the facts; the main difficulty lies in the execution of practicable remedies.

There is, however, nothing else to be done, unless the decay of the people is to be allowed to bear its ultimate fruits.

17. It would be easy to add to these details from other parts of the report, but this specimen of them will suffice to indicate both the causes and remedies for these fever pestilences, so far as they may be due to locality. The Commission need scarcely repeat what has frequently been urged in former papers on this subject, that it is one urgently requiring the action of Government. The facts are enough to show this necessity.

18. Passing over a very interesting account of "dengue," attention may next be called to the large mortality from snake-bite and from wild beasts, by which 6,510 persons died in Bengal in 1872, and to the only remedy in the case of snakes, namely, holding out sufficient inducements for ensuring their destruction.

19. Section IV., which deals with the matter of "sanitary progress," is chiefly devoted to a statement of sanitary defects. From any thing that appears to the contrary, very little real sanitary improvement appears to have been carried out in rural Bengal in 1872, and not much in the towns. There are difficulties about the agents; funds are scarce; people are apathetic and ignorant; municipal government appears to be yet in its infancy; and there seems to be no superior direction, such as has been exercised in other parts of India. No doubt the difficulties are as great, if not greater in Bengal, with its peculiar climate and topography, than they are in other parts of India; but this affords no reason for standing still.

The Commission would beg to suggest whether it would not be advisable to examine what has been done in other sanitary divisions of the country with the view of advantage being taken of experience already obtained for framing some form of produce sufficient to cope with the avowedly difficult conditions which surround sanitary improvement in Bengal Presidency.

In none of the papers which have come before the Commission, except those relating to Calcutta, is there any indication of a consistent sanitary procedure being followed, and the hopeful feature in the present Report is the reference made to the prospective drainage of fever-stricken localities.

ARMY SANITARY COMMISSION,
WAR OFFICE, 11*th June* 1875.

(Signed) J. J. FREDERICK,
Secretary.

No. 15-299.

Government of Madras.
,, of Bombay.
,, of North-Western Provinces.
,, of Punjab.
Chief Commissioner of Oudh.
,, of Central Provinces.
,, of British Burma.
,, of Mysore and Coorg.
,, of Assam.
Resident at Hyderabad.

Copy of the above letter and of its enclosures forwarded to the Governments and Administrations marginally noted for information.

(Signed) T. J. C. PLOWDEN,
Offg. Under Secy. to the Govt. of India.

No. 24. ORDER THEREON, 7th October 1875, No. 1238.

Communicated to the Military Department, the Board of Revenue, the Surgeon-General, Indian Medical Department, and to the Sanitary Commissioner.

(True Extract.)

Officiating Chief Secretary.

To the Military Department.
,, Board of Revenue.
,, Surgeon-General, Indian Medical Department.
,, Sanitary Commissioner.

Exd. A. Grubert.

Govt. of {1875} Madras.

PUBLIC.

To
The MILITARY DEPARTMENT,
&c., &c., &c.

Dated October, 7th.

Issued

Recd. Encl.

G.O., 7th October 1875, N...

OCTOBER.
Nos. 23-24.

Sanitary.—Letter from the Government of India forwarding letter to the Government of Bengal in connexion with the observations of the Army Sanitary Commission on the Bengal Sanitary Report for 1872, communicated.

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